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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US (patent), UZ, VC, VN, YU, ZA, ZM, ZW.

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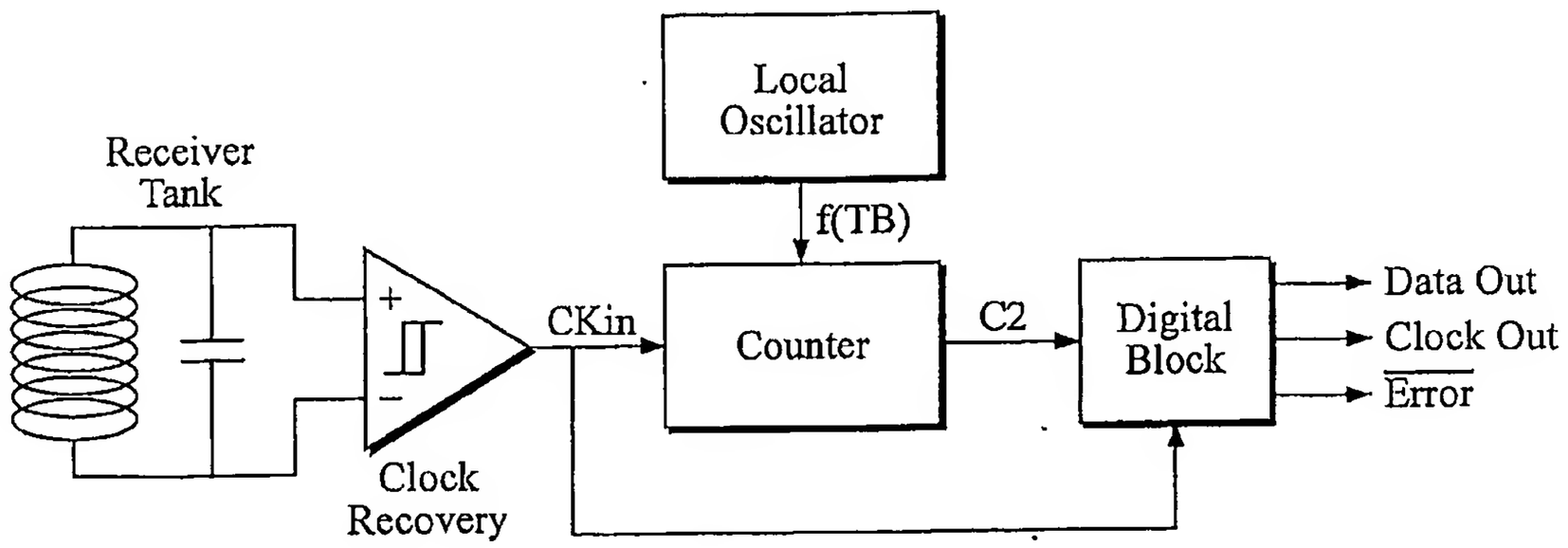
Declarations under Rule 4.17:

— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM,*

[Continued on next page]

(54) Title: DEMODULATR, CHIP AND METHOD FOR DIGITALLY DEMODULATING AN FSK SIGNAL



(57) Abstract: A demodulator, chip and method for digitally demodulating an FSK signal utilizing a digital data transfer protocol and a digital demodulator circuit have been developed. The data-rate approaches the carrier-frequency. The one application for this technique is in the magnetically powered wireless systems such as biomedical implants and radio frequency identification (RFID) tags with high data rates above 1 Mbps. The demodulator circuit extracts the serial data bit-stream and a constant-frequency clock from an FSK carrier signal in the 1-20 MHZ range, which can power the wireless system as well. The digital demodulator circuit is implemented entirely with digital circuitry and is called a digital-FSK (DFSK) demodulator.

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INTERNATIONAL SEARCH REPORT

International application No.
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A. CLASSIFICATION OF SUBJECT MATTER
IPC(7) : H03D 3/00
US CL : 375/334
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : Please See Continuation Sheet

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2002/0045920 A1 (THOMPSON) 18 April 2002 (18.04.2002), paragraphs 0018, 0054 and 0057, figure 4.	1,9,10,11 and 19 --- 2-8, 12-20
Y	US 2001/0002924 A1 (TAJIMA) 7 June 2001 (07.06.2001), figure3 and paragraph 0031.	2-5 and 12-15
Y	US 2001/0021234 A1 (KATAYAMA et al) 13 September 2001 (13.09.2001), figure 2 and paragraphs 0015-0018.	6 and 16
Y	US 4,066,841 (YOUNG) 3 January 1978 (03.01.1978), abstract and column 5, line 65 to column 6, line 6.	7,8,17,18 and 20
A	US 4,627,078 (STONER) 2 December 1986 (02.12.1986), figure 4 and column 6, line 50 to column 7, line 11.	all claims

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
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Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Kevin M. Burd Telephone No. 703-305-4900

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Continuation of B. FIELDS SEARCHED Item 1:
375/334,316,322
607/60

Continuation of B. *FIELDS SEARCHED* Item 3:
EAST
search terms: fsk, carrier, demodulate

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